

ABSTRACT

[0074] A covalent crosslinking of ion-conducting materials via sulfonic acid groups can be applied to various low cost electrolyte membrane base materials for improved fuel cell performance metrics relative to such base material. This proposed approach is due, in part, to the observation that many aromatic and aliphatic polymer materials have significant potential as proton exchange membranes if a modification can increase their physical and chemical stabilities without sacrificing electrochemical performance or significantly increasing the material and production costs.